

Work Order ID 83344

April-17-12 2:17:27 PM

83344

Page 1

Item ID: D3688-1

Accept

N900040100

Setup Start ***NS1***

Revision ID:

Item Name: STUD

Stop ***NS2***

Start Date: 17/04/2012 Start Qty: 5.00 ***5***

Cust Item ID:

Required Date: 01/05/2012 Req'd Qty: 5.00 ***5***

Customer:

Reference:

Approvals: Process Plan: MLJ Date: 12/04/12 Tooling:

Run Start ***NR1***

QC: Date: SPC (Y/N):

Date:

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D3688	Rev C								

100

0.00

100

BAND SAW

Bandsaw

Memo

0.00

Jeaspa Bandsaw

DO NOT USE CHOP SAW

Cut blank 11.673" long

SL 12-08-9

(5)

110

0.00

110

DOOSAN LATHE

Doosan

Memo

0.00

Doosan Lathe

1-Turn as per Folio FA718 Rev: MA & Dwg D3688 Rev: 2 2-Deburr per dwg D3688

3-Check .625" bore with DT9530 GO/NO GO Gauge

SL 12-8-11

120

QC2- Inspect parts off machine FAI/FAIB

0.00

120

QC

Memo

0.00

Quality Control

SL 12-8-11

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Page 2

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Accept

N900040100

Setup Start

NS1

Revision ID:

Item Name: STUD

Stop

NS2

Start Date: 17/04/2012 Start Qty: 5.00

5

Cust Item ID:

Required Date: 01/05/2012 Req'd Qty: 5.00

5

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run

Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

170

QC8- Inspect parts - second check

0.00

170

QC

Memo

0.00

Quality Control

100% CHECK,CHECK ALL DIMENSIONS AND THREAD FIT

DAS
13
9-83

12/8/13

5

0

180

PURCHASING

0.00

180

Purchasing

Memo

0.00

Purchasing

Issue P/O:

17693

LPI Per ASTM 1417 LEVEL

2Certificate of conformaty is required

CX 12/02/15 (S)

190

Receive & Inspect for Damage & Mat'l Certs

0.00

190

Packaging

Memo

0.00

Packaging

Ensure certificate of conformity is attached

5x

12-8-20

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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83344

Page 3

Accept

N900040100

Setup Start *NS1*

Stop *NS2*

Cust Item ID:

Start Date: 17/04/2012 **Start Qty:** 5.00 ***5***

Required Date: 01/05/2012 **Req'd Qty:** 5.00 ***5***

Customer:

Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____ **Run** **Start** ***NR1***
 QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____ **Stop** ***NR2***

[illegible]

MF
12-08-2

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

April-17-12 2:17:31 PM

Page 1

Work Order ID: 83344

83344

Parent Item: D3688-1

D3688-1

Parent Item Name: STUD

Start Date: 17/04/2012

Required Date: 01/05/2012

Start Qty: 5.00

Required Qty: 5.00

Comments: IPP Rev:A New Issue 08-01-29 JLM Verified By:EC
 IPP Rev:B Material Change 09-01-07 JLM Verified By:EC
 IPP Rev:C Added note on Step 2 09-01-26 JLM Verified By:EC
 IPP REV:D 10.07.06 revo step 130-160 DD verf:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M174PH-H900R1.000		Purchased	No			100	f	75.4800	1.087	5.721053			

M174PH-H900R1 000

17-4SS H900 ROUND BAR 1.00

**

SL 12-08-10

Location

Loc Qty

Loc Code

MAT030

75.48

117445

1.23

120767

11.75

121280

62.5

12/9/8

5.73

W/O:		WORK ORDER CHANGES					
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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order: 83344
Description: Stud		Part Number: D3688-1
Inspection Dwg: D3688	Rev: C	Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
Ø0.695	+/-0.010	.685	/		2x 02	
0.625	+0.004/-0.000	.626	/			
1.25	+0.000/-0.03	1.220	/			
118°	0.5°	118°	/			
R0.03	+/-0.030	.02	/			
0.11 Ref	+/-0.030	.11	/			
90°	0.5°	90°	/			
Ø0.189	+0.005/-0.001	.190	/			
1.31	+/-0.030	1.310	/			
1.65	+/-0.030	1.650	/			
0.870	+0.000/-0.010	.868	/			
Ø0.659	+0.000/-0.015	.656	/			
11.573	+/-0.015	11.575	/			
2.90	+/-0.030	2.70	/			
3/4-16UNF-2A	N/A	2A	/			
0.075 x 45°	+/-0.010 x 0.5°	.085	/			
0.370	+0.000/-0.010	.368	/			
Ø0.189	+0.005/-0.001	.190	/			
R0.25	+/-0.030	.25	/			
R0.50	+/-0.030	.50	/			

Measured by: 24
Date: 28.11

Audited by: 13
Date: 28/11

Prototype Approval:	N/A
Date:	N/A

Rev	Date	Change	Revised by	Approved
A	09.05.11	New Issue	KJ	
B	09.11.04	Dwg Rev updated	KJ	

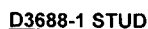
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



- NOTES:**
 1) MATERIAL: 17-4PH STAINLESS STEEL ROUND BAR PER AMS 5643 H-900 CONDITION
 2) FINISH: NONE
 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 5) BREAK SHARP EDGES. 0.005 TO 0.010 MAX
 6) IDENTIFICATION: NONE
 7) WEIGHT: 1.24 lb
 8) LPI PER QSI 038 4.1.1 (ASTM E1417 LEVEL 2)

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER

NO. 834594

C	0.20 WAS 0.16 (ZN B5-1, B5-2, B6-3, B5-4); CENTER DRILL #2 WAS CENTER DRILL #2 (ZN B6-1, B6-2, B6-3, B6-4); UPDATE NOTE 8 TO REF QSI (ZN A8-1, A8-2, A8-3, A8-4)	RF	09.09.09
B	CHANGE TO 17-4PH H-900 (ZN A8-1, A8-2, A8-3, A4-4); REDUCE LENGTH ON SUB88-1 FROM 12 073 TO 11 573 (ZN C3-1) BASED ON PROTOTYPE INST. 00.695 WAS 00.665 (ZN D8-1, D8-2, D8-3); 00.508 WAS 00.478 (ZN D8-4); REFORMATTED TO CURRENT DWG STANDARDS	RF	08.11.24
A	NEW ISSUE	RF	08.05.22
REV	DESCRIPTION	BY	DATE
DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA DRAWING NO. D3688 TITLE STUD COPYRIGHT © 2008 BY DART AEROSPACE LTD THIS DOCUMENT IS PRINTED AND REPRODUCED IN THE EXPRESS UNDERSTANDING THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR REPRODUCED TO ANY OTHER PERSON WITHOUT THE WRITTEN PERMISSION OF DART AEROSPACE LTD	
DRAWN	RF		
CHECKED	<i>yo</i>		
MFG. APPR.	<i>yo</i>		
APPROVED	<i>yo</i>		
DE APPR.	<i>yo</i>	DRAWING NO.	REV. 0
DATE	09.09.09	TITLE	SHEET 1 OF 1
		STUD	SCALE
			NTS

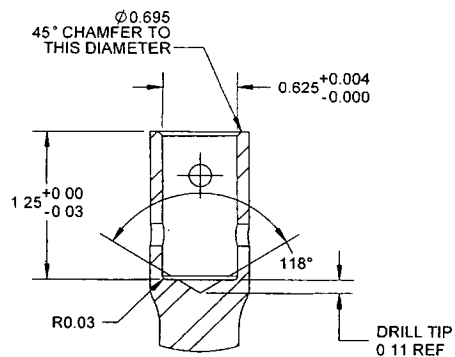
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

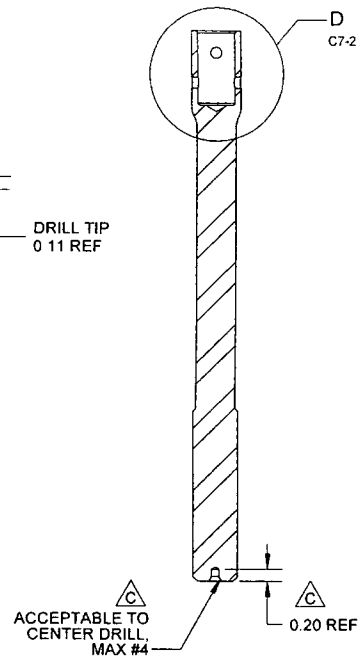
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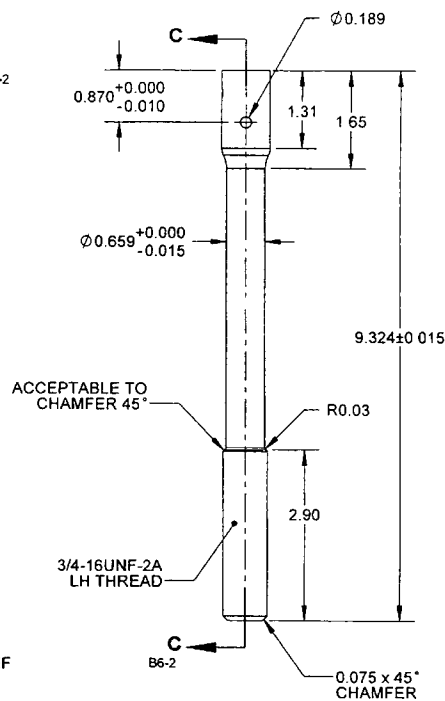
NOTE: Date & initial all entries



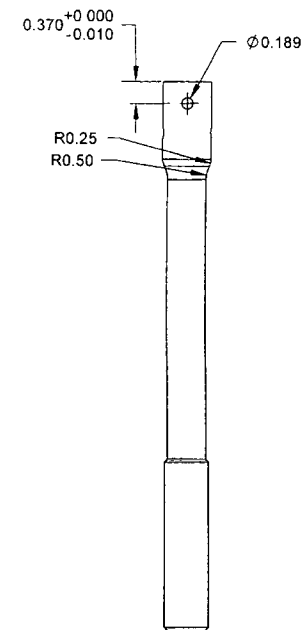
DETAIL D
SCALE 2X
D6-2



SECTION C-C
D4-2



D3688-3 STUD



RELEASED
2009-09-22

NOTES:

- 1) MATERIAL: 17-4PH STAINLESS STEEL ROUND BAR PER AMS 5643 H-900 CONDITION
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 0.97 lb
- 8) LPI PER QSI 038 4.1.1 (ASTM E1417 LEVEL 2)

DESIGN	RF	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	GP	DRAWING NO.	REV. C
MFG. APPR.	GP	D3688	SHEET 2 OF 4
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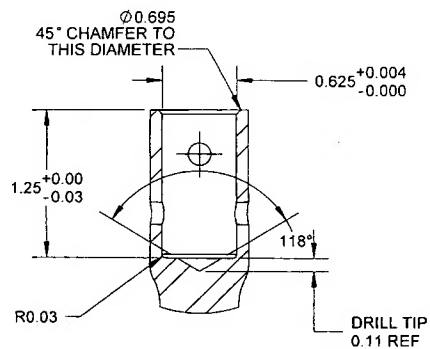
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

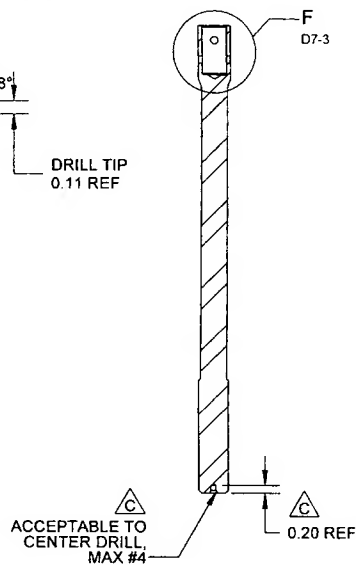
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



DETAIL F
SCALE 3X
D6-3



SECTION E-E
D4-3

D3688-5 STUD

NOTES:

- 1) MATERIAL: 17-4PH STAINLESS STEEL ROUND BAR PER AMS 5643 H-900 CONDITION
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 1.26 lb
- 8) LPI PER QSI 038 4.1.1 (ASTM E1417 LEVEL 2)

DESIGN	RF	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	GP	DRAWING NO.	REV. C
MFG. APPR.	GP	D3688	SHEET 3 OF 4
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RELEASED
2009-09-22

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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LIQUID PENETRANT TEST REPORT

P- 12727

CLIENT DART Aerospace DATE August 15/12 PAGE 1 OF 1
ATTENTION MAT/LINDA ACUREN JOB No. 188-12-C0316 TIME AM ☒ PM ☐
ADDRESS 1270 ABERDEEN PO/WO No. -
HAWKESBURY, ON. WORK LOCATION SAME
PROJECT CROSS TUBES ACCEPTANCE STD. ASTM 1417/BS1038 REV./DATE 2005
ITEM(S) EXAMINED STUDS

JOB DESCRIPTION SEE RESULTS PROCEDURE No. LT-2002 REV./DATE 2008 TECHNIQUE No. LT-2002 REV./DATE 2008
PART NO. SEE RESULTS MATERIAL ALUMINUM THICKNESS VARIABLE
SCOPE A WET FLOWESCENT EXAMINATION WAS COMPLETED ON THE SURFACE
ONLY 100%

TEST DETAILS
METHOD ☒ FLUORESCENT ☐ VISIBLE ☒ WATER WASH ☐ SOLVENT REMOVABLE ☐ POST EMULSIFIED
FAMILY BRAND MENAVIS BLACK LIGHT S/N 16459 ☐ OUTPUT > 1000 μ W/cm² ☐ AMBIENT < 2 fc
PENETRANT 2460 2467 MINIMUM DWELL TIME 45 MIN. LIGHTING EQUIP. ☐ FLASHLIGHT ☐ TROUBLELIGHT ☐ OUTPUT > 100 fc @ SURFACE
PENETRANT REMOVER H2O MINIMUM DRY TIME 10 MIN. OTHER LABINO
DEVELOPER SKD 52 MINIMUM DWELL TIME 10 MIN. LIGHT METER S/N 1098866 CAL DUE DATE 08/25/13
DEVELOPER TYPE ☒ NON AQUEOUS ☐ AQUEOUS ☐ DRY

TEST SURFACE
SURFACE CONDITION ☐ AS GROUND ☐ AS WELDED ☒ MACHINED ☐ SHOT BLASTED ☒ CLEAN BARE METAL
SURFACE TEMPERATURE ☐ < -4°C/ 20°F ☐ -4°C/ 20°F TO 10°C/50°F ☒ 10°C/50°F TO 52°C/125°F ☐ > 52°C/125°F

RESULTS- ☒ METRIC ☐ IMPERIAL

ITEM	COMMENTS	ACCEPT	REJECT
	STUDS W.O. #		
3	" " 87080	✓	
2	" " 88164	✓	
5	" " 83344	✓	8/20/12
	CROSS TUBES W.O. #		
1	" " 88094	✓	
1	" " 88093	✓	

Scope of Services
The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

Standard of Care
In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

SIGNATURES
CLIENT REPRESENTATIVE Marc Brunet DTR # E-120511
TECHNICIAN (SIGNATURE): Mike Litherston REPORT REVIEWED BY:
NAME (PRINT): Mike Litherston NAME INITIALS
CGSB LEVEL II SNT LEVEL II CGSB LEVEL II SNT LEVEL II
CGSB REG. No 6606 CGSB REG. No 6606

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